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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/712,420	11/13/2000	Michael J. Daneman	ONX-109	9691

7590 10/31/2002  
Joshua D. Isenberg  
204 Castro Lane  
Fremont, CA 94539

EXAMINER

CULBERT, ROBERTS P

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 10/31/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.		Applicant(s)	
	09/712,420		DANEMAN ET AL.	
	Examiner		Art Unit	
	Roberts Culbert		1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 17-22 and 25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-25 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____.  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Election/Restrictions***

Restriction to one of the following inventions is required under 35 U.S.C. 121:

Group I. Claims 1-16, 23 and 24 drawn to an etching method, classified in class 216, subclass 2.

Group II. Claims 17-22, and 25, drawn to a MEMS comb drive structure, classified in class 310, subclass 311.

The inventions are distinct, each from the other because of the following reasons:

The Inventions of Groups I and II are related as process of making and product made.

The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be made by another and materially different process. For example, the device may be formed without the use of a mask.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification and recognized divergent subject matter, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

During a telephone conversation with Joshua Isenberg on 10/24/2002 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16, 23 and 24. Affirmation of this election must be made by applicant in replying to this Office action. Claims

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17-22 and 25 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 10-15 and 23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "proximate one or ore of the exposed areas" in reference to Claim 1. There is insufficient antecedent basis for "exposed areas" in Claim 1. It is suggested that the "exposed areas" should be disclosed in Claim 1, as in Claim 16.

***Claim Rejections - 35 USC § 102***

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7,9,10-16, 23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,426,070 to Shaw et al.

Referring to the Figures, Shaw teaches a method for the controlled release of structures. Trenches are formed in a silicon device layer (Fig. 1E). Structures are defined on each side of the trench. An etch-stop material (silicon dioxide) is deposited in the trench and over the surface of the device layer (Fig. 1F). Openings are formed in the etch-stop material (Fig. 1G). The surface of the device layer is masked (Fig. 1H), and the structure is released by etching (Fig. 1I). The etching undercuts a portion of the etch-stop material (Fig. 1I). The layer of device material is disposed between two layers of etch-stop material (Fig. 1I). A structural layer is formed proximate to the device layer and is protected from the silicon layer by the etch-stop layer (Fig. 1J). A portion of this structural layer is released, and contains two sub layers. (Fig. 1J).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,426,070 to Shaw et al.

Regarding claim 6, as applied above, Shaw discloses the method of the invention substantially as claimed, but uses reactive ion etching to release the vertical structure from the

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substrate. Shaw does not show wet etching. It is well-known in the semiconductor art that both wet and dry chemical etching methods are suitable for etching grooves in silicon. U.S. Patent 5,084,419 to Sakao shows that wet etching and dry etching are art-recognized equivalents for the purpose of etching grooves in silicon (Column 5 Lines 17-24), and it has been held that substitution of one art-recognized equivalent for another is *prima facie* obvious. *In re Fout*, 297, 213 USPQ 532 (CCPA 1982).

Regarding claim 8, as applied above, Shaw discloses the method of the invention substantially as claimed, but uses a crystalline silicon substrate as a device layer. Shaw does not show the use of a silicon-on-insulator (SOI) substrate. It is common practice to fabricate a semiconductor device using a silicon-on-insulator substrate as a starting material. (*Silicon Processing for the VLSI Era* Vol.4, pp.14-15) It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a SOI substrate as a starting material in order to produce a semiconductor device with simplified device isolation and processing.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. MacDonald et al. shows a similar method for forming an isolated structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (703) 305-7965. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (703) 308-1633. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

October 29, 2002



**GREGORY MILLS**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 1700**